

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: April 24, 1997
Date Received: April 17, 1997
Project: Metro Self Monitor, PO #M74214
Date Samples Extracted: April 21, 1997
Date Extracts Analyzed: April 22, 1997

**RESULTS FROM THE ANALYSIS OF THE WATER SAMPLE
FOR CHROMIUM, COPPER, NICKEL, AND ZINC
USING METHOD 6010**

Samples Processed Using Method 3005A
Results Reported as mg/L (ppm)

| <u>Sample ID</u> | <u>Chromium</u> | <u>Copper</u> | <u>Nickel</u> | <u>Zinc</u> |
|------------------|-----------------|---------------|---------------|-------------|
| M74214 | 0.55 | 0.49 | 0.44 | <0.05 |
| Method Blank | <0.05 | <0.05 | <0.05 | <0.05 |

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**QUALITY ASSURANCE RESULTS
FOR TOTAL METALS BY
INDUCTIVELY COUPLED PLASMA (ICP)
(METHOD 6010)**

Laboratory Code: 77331 (Duplicate)

| <u>Analyte:</u> | <u>Reporting Units</u> | <u>Sample Result</u> | <u>Duplicate Result</u> | <u>Relative Percent Difference</u> | <u>Acceptance Criteria</u> |
|-----------------|----------------------------|--------------------------|-----------------------------|--|--------------------------------|
| Chromium | mg/L (ppm) | 0.38 | 0.37 | 3 | 0-20 |
| Copper | mg/L (ppm) | 0.27 | 0.27 | 0 | 0-20 |
| Nickel | mg/L (ppm) | 0.23 | 0.23 | 0 a | 0-20 |
| Zinc | mg/L (ppm) | <0.05 | <0.05 | nm | 0-20 |

Laboratory Code: 77331 (Matrix Spike)

| <u>Analyte:</u> | <u>Reporting Units</u> | <u>Spike Level</u> | <u>Sample Result</u> | <u>% Recovery</u> | | <u>Acceptance Criteria</u> | <u>Relative Percent Difference</u> |
|-----------------|----------------------------|------------------------|--------------------------|-------------------|------------|--------------------------------|--|
| | | | | <u>MS</u> | <u>MSD</u> | | |
| Chromium | mg/L (ppm) | 5 | 0.38 | 94 | 95 | 80-120 | 1 |
| Copper | mg/L (ppm) | 5 | 0.27 | 91 | 92 | 80-120 | 1 |
| Nickel | mg/L (ppm) | 10 | 0.23 | 97 | 95 | 80-120 | 2 |
| Zinc | mg/L (ppm) | 5 | <0.05 | 98 | 98 | 80-120 | 0 |

Laboratory Code: Spike Blank

| <u>Analyte:</u> | <u>Reporting Units</u> | <u>Spike Level</u> | <u>% Recovery</u> | | <u>Acceptance Criteria</u> | <u>Relative Percent Difference</u> |
|-----------------|----------------------------|------------------------|-------------------|------------|--------------------------------|--|
| | | | <u>MS</u> | <u>MSD</u> | | |
| Chromium | mg/L (ppm) | 5 | 103 | 98 | 80-120 | 5 |
| Copper | mg/L (ppm) | 5 | 99 | 95 | 80-120 | 4 |
| Nickel | mg/L (ppm) | 10 | 103 | 103 | 80-120 | 0 |
| Zinc | mg/L (ppm) | 5 | 104 | 101 | 80-120 | 3 |

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

a - The analyte was detected at a level less than five times the detection limit. The RPD results may not provide reliable information on the variability of the analysis.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Beth M. Albertson, M.S.
Bradley T. Benson
Kelley Wilt

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
FAX: (206) 283-5044

April 24, 1997

INVOICE # 97ACU0424-1
DUPLICATE COPY

Accounts Payable
Alaskan Copper Works
628 South Hanford St.
Seattle, WA 98134

RE: Project Metro Self Monitor, PO #M74214: Results of testing requested by
Gerry Thompson, Project Manager for material submitted on April 17, 1997.

1 water sample analyzed for
Chromium, Copper, Nickel, and Zinc
using Method 6010 @ \$65 per sample

\$ 65.00

Amount Due

\$ 65.00

FEDERAL TAX ID #(b) (6)

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April 24, 1997

Gerry Thompson, Project Manager
Alaskan Copper Works
628 South Hanford St.
Seattle, WA 98134

Dear Mr. Thompson:

Included are the results from the testing of material submitted on April 17, 1997 from your Metro Self Monitor, PO #M74214 project.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Kurt Johnson
Chemist

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Enclosures
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